

**REMARKS/ARGUMENTS**

Claims 1-9 are pending in the present application. In the previous Office Action claims 1-9 were rejected under 35 U.S.C. § 102(b). In the current Office Action, claims 1-4 and 7-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick (U.S. 5,012,722) and in view of Takano et. al. (U.S. 5,938,947), and claims 5 and 6 have been rejected under 35 U.S.C. 103(a) as being unpatentable over McCormick (U.S. 5,012,722) and in view of Bergstrom (U.S. 6,249,418). Applicant believes claims 1-9 are in condition for allowance and for that reason Applicant reasserts previous arguments and offers the following argument traversing Examiner's rejections. No claims have been added, amended or canceled. Therefore, Applicant respectfully requests allowance of such claims.

**McCormick Does Not Anticipate Applicant's Invention:**

Claims 1-9 were rejected in the prior office action under 35 U.S.C. § 102(b) as being anticipated by McCormick.

Anticipation "requires that the same invention, including each element and limitation of the claims, was known or used by others before it was invented by the patentee." Hoover Group, Inc. v. Custom Metalcraft, Inc., 66 F.3d 299, 302, 36 U.S.P.Q.2d 1101, 1103 (Fed. Cir. 1995). "[P]rior knowledge by others requires that all of the elements and limitations of the claimed subject matter must be expressly or inherently described in a single prior art reference." Elan Pharms., Inc. v. Mayo Foundation for Medical Educ. & Research, 304 F.2d 1221, 1227, 64 U.S.P.Q.2d 1292 (Fed. Cir. 2002) (citing *In re Robertson*, 169 F.3d 743, 745, 49 U.S.P.Q.2d 1949, 1950 (Fed. Cir. 1999); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571 7 U.S.P.Q.2d 1057, 1064 (Fed. Cir. 1988)). "The single reference must describe and enable the claimed invention, including all

claim limitations, with sufficient clarity and detail to establish that the subject matter already existed in the prior art and that its existence was recognized by persons of ordinary skill in the field of the invention." Id. (citing Crown Operations Int'l, Ltd. v. Solutia Inc., 289 F.3d 1367, 1375, 62 U.S.P.Q.2d 1917, 1921 (Fed. Cir. 2002); In re Spada, 911 F.2d 705, 708 15 U.S.P.Q.2d 1655, 1657 (Fed. Cir. 1990)). See also PPG Indus., Inc. v. Guardian Indus. Corp., 75 F.3d 1558, 1566, 37 U.S.P.Q.2d 1618, 1624 (Fed. Cir. 1996) (emphasis added).

Reasserting Applicant's prior argument; McCormick teaches a servo valve utilizing a free-floating coil linear force motor driving a hydraulic spool drive and various feedback devices. More specifically, in Figures 1 and 3, McCormick teaches a coil state feedback device 108 used to feedback the position of a LFM coil 54 within an LFM housing (col 5, line 29-31). A valve state feedback device 110 is used to feedback the state of a valve 11 by indicating the position of a spool 44 within a valve housing 42 (col. 5, lines 31-34). Actuator state feedback device 112 may be used to feedback a state of an actuator 106 (col. 5, lines 34-38). McCormick also teaches a feedback signal that is "proportional to the changing peak to peak magnitude of the magnetic field of the LFM coil (54)" (col. 5, lines 64-66). Additionally, McCormick teaches a "voltage feedback signal proportional to the position of core 114, and therefore, also proportional to the position of the valve spool 44 with respect to the valve housing 42" (col. 6, lines 17-20).

However, McCormick fails to teach or suggest sampling feedback signals from an electrohydraulic valve to "create a plurality of signal samples," "transmitting the plurality of samples to an accumulator," and "**averaging** the plurality of samples within the accumulator to create an average value," as

recited in Claim 1. Similarly, McCormick fails to teach or suggest "calculating an average current" as recited in Claim 8, or "calculating the amount of average current in the coil" as recited in Claim 9.

In response to this argument, Examiner appreciatively conceded "McCormick does not point out clearly the 'operate in a desired manner' is using 'averaging, calculating the samples'". (Examiner's Office Action, page 3). Therefore McCormick cannot anticipate Applicant's invention because McCormick does not include each and every limitation recited in Applicant's claims.

Additionally, Examiner cited a number of prior patents in support of Examiner's statement "'averaging, calculating the samples', is well know in the art." (Examiner's Office Action, page 6). In order to support a 35 U.S.C. § 102(b) rejection each and every limitation of the claims must be recited within the four corners of a single prior art reference. Although Examiner states that "'averaging, calculating the samples', is well know in the art", Applicant asserts Examiner has not carried his burden of proving a prima facie case of anticipation under § 102(b) because each and every element of Applicant's claims has not been recited in a single prior art reference.

McCormick Does Not Render Applicant's Invention Obvious:

Claims 1-4 and 7-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over McCormick and in view of Takano.

1. The prior Art Combined is Non-Analogous and Cannot Sustain a Prima Facie Case of Obviousness

A prerequisite to making a finding of obviousness is determining what is "prior art," in order to consider whether "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a

whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103. This determination is frequently couched in terms of whether the art is analogous or not, i.e., whether the art is "too remote to be treated as prior art." In re Sovish, 769 F.2d 738, 741, 266 USPQ 771, 773 (Fed. Cir. 1985).

Appellant asserts that the claims at issue have been improperly rejected over McCormick and in view of Takano, because Takano is non-analogous art. The Examiner claims that although

**McCormick** does not point out clearly the 'operate in a desired manner' is using 'averaging, calculating the samples'

**Takano** teaches 'averaging, calculating the samples' [Takano, Col. 6, Line 22 - Col. 8, Line 38] for the purpose of detecting a reduction in the accurately with which the welding current is detected,..., controlling the welding current with a predetermined degree of accuracy even when a reduction is detected. [Col. 2, Lines 57-63]

It would have been obvious to a person of ordinary skill in the art at the time of the applicant's invention to modify the teaching of **McCormick** to include the teach of **Takano**, 'averaging, calculating the samples', for the purpose of detecting a reduction in the accurately with which the welding current is detected,..., controlling the welding current with a predetermined degree of accuracy even when a reduction is detected. [Col. 2, Lines 57-63]

(Examiner's Office Action, page 3-4). The Applicant asserts that the Examiner has failed to meet the burden of establishing a *prima facie* case of obviousness because the Takano reference is not analogous art and should not be considered in an obviousness analysis. The reference relied upon by the Examiner must either be in field of the inventor's endeavor or reasonably pertinent to the specific problem with which the inventor was

involved. In re Deminski, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986).

The Takano reference relied upon by the Examiner is not in the Applicant's field of endeavor. When regarding the field of endeavor, the Applicant's invention deals particularly with "a method of driving an electrohydraulic valve with a PWM drive." (Specification, page 2). In contrast, the Takano reference is directed toward "a method of controlling a welding current highly accurately while making it possible to detect a reduction in the accuracy with which the welding current is detected." (Col. 2, lines 57-63). The Takano reference is not directed toward nor does it discuss "a method of driving an electrohydraulic valve with a PWM drive." (Specification, page 2). Consequently, this reference relied upon by the Examiner is not in the field of the inventor's endeavor and should not be relied upon.

The Takano reference is not reasonably pertinent to the Applicant's problem. The Federal Circuit has clarified how to determine whether a reference is reasonably pertinent to the particular problem in which the endeavor was involved as follows:

[a] reference is reasonably pertinent if ... it is one which, because of the matter with which it deals, logically would have commended itself to the inventor's attention in considering his problem. ... If a reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem. ... [I]f it is directed to a different purpose, the inventor would accordingly have had less motivation or occasion to consider it.

In re Clay, 966 F.2d 656, 23 USPQ 2d 1058, 1060-61 (Fed. Cir. 1992). (Emphasis added); See also, MPEP § 2141.01(a). According to the Applicant's specification, "a primary object of the

present invention [is] to provide a method of calculating the average current within a PWM cycle using a Finite Impulse Response (FIR) to minimize lag in the feedback signal." (page 2). The purpose of the Takano reference is to provide "a method of controlling a welding current highly accurately while making it possible to detect a reduction in the accuracy with which the welding current is detected, the method being capable of controlling the welding current with a predetermined degree of accuracy even when a reduction is detected in the accuracy with which the welding current is detected." (Col. 2, lines 57-63).

The Applicant's reference has a different purpose as compared to that of the Takano reference. Specifically, the Applicant's reference is for providing a method of controlling a electrohydraulic valve, whereas the Takano reference is for controlling a welding current. Therefore, Takano solves a different problem than the claimed invention. Consequently, one skilled in the art would have less motivation or occasion to consider the references cited by the Examiner. Because the references relied upon by the Examiner are not in the field of the inventor's endeavor and are not reasonably pertinent to the specific problem with which the inventor is involved, the Takano reference is not analogous and should not be considered in an obviousness analysis.

2. There is No Suggestion or Motivation to Combine the  
Prior Art to Make Out a Prima Facie Case of  
Obviousness

An obviousness analysis begins in the text of section 103 with the phrase "at the time the invention was made." For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight when analyzing the patentability of claims pursuant to that section. See Loctite Corp. v. Ultraseal

Ltd., 781 F.2d 861, 873, 228 USPQ 90, 98 (Fed. Cir. 1985), overruled on other grounds by Nobelpharma AB v. Implant Innovations, Inc., 141 F.3d 1059, 46 USPQ 2d 1097 (Fed. Cir. 1998). Measuring a claimed invention against the standard established requires the often difficult but critical step of casting the mind back to the time of the invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and then-accepted wisdom in the field. See, e.g. W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against the teacher." Id.

The best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, 48 USPQ 2d 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine] as an essential evidentiary component of an obviousness holding") combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability - the essence of hindsight. See, e.g. Interconnect Planning Corp. v Feil, 774 F.2d 1132, 1138, 277 USPQ 543, 547 (Fed. Cir. 1985) ("The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the

time.") In this case, the Examiner has fallen into the hindsight trap.

Evidence of a suggestion, teaching or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem solved, although the suggestion more often comes from the teachings of the pertinent references. Rouffet, 149 F.3d at 1355. The range of sources available does not diminish the requirement for actual evidence. That showing must be clear and particular. See, e.g., C.R. Bard, 157 F.3d at 1352. Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. e.g., McElmurry v. Arkansas Power & Light Co., 995 F.2d 1576, 1578, 27 USPQ 2d 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statement, however, are not sufficient to establish a genuine issue of material fact.").

The obviousness rejections asserted by the Examiner are based on a combination of prior art references, e.g. the servo control loop used to control an electrohydraulic valve of McCormick, combined with the use of an average value of Takano. To justify this combination the Examiner simply stated "It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of McCormick to include the teach of Takano, 'averaging, calculating the samples', for the purpose of detecting a reduction in the accurately with which the welding current is detected." (Examiner's Office Action, page 4). Rather than pointing to specific information in McCormick or Takano that suggest the combination, the Examiner simply offered a broad conclusory statement which, standing alone, is not sufficient to establish a genuine issue of material fact. See McElmurry v.



Arkansas Power & Light Co., 995 F.2d 1576, 1578, 27 USPQ 2d 1129, 1131 (Fed. Cir. 1993). Additionally, the Examiner referenced seven prior U.S. patents in support of his conclusion that "calculating, averaging the samples" is already well known in the art. (Examiner's Office Action, page 5). However, nowhere does the Examiner particularly identify any suggestion, teaching, or motivation to combine the prior art references such as the identification of the relevant art, the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that might serve to support a proper obviousness analysis. See, e.g., Pro-Mold & Tool, 75 F.3d 1568, 1573, 37 USPQ 2d 1626, 1630 (Fed. Cir. 1996).

To the contrary, the Examiner's decision is based on a discussion of the ways that the multiple prior art references can be combined to read on the claimed invention (Examiner's Answer, Pages 3-6). Yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the McCormick or Takano (or Suzumi et al.; Kimura et al.; Poletto, Vanni; Nakazawa, Yosuke; Masaki et al.; Shorkey; or Singleton et al.) references teach or suggest their combination to yield the claimed invention. For example, the Examiner has not explained why, if it was obvious to make the proposed combination, that the method of controlling a welding current in Takano (1999) did not combine the servo control loop used to control an electrohydraulic valve of McCormick (1991). In contrast, Takano, as a person of ordinary skill in the art, chose to use an average value to control a welding current, not to control an electrohydraulic valve, as is set forth in independent claim 1 of Applicant's application. Additionally, the above argument applies to the pulse width modulator of Applicant's claim 8 and

the electric coil of a machine with a pulse width modulator of Applicant's claim 9.

Accordingly, because the Examiner has not particularly identified any suggestion, teaching, or motivation to combine the prior art references, the Examiner's conclusion of obviousness, as a matter of law, cannot stand.

#### CONCLUSION

In view of the above remarks and arguments, Applicant believes that claims 1-9 are in condition for allowance and Applicant respectfully requests allowance of such claims.

If any issues remain that may be expeditiously addressed in a telephone interview, the Examiner is encouraged to telephone the undersigned at 515/558-0200.

All fees or extensions of time believed to be due in connection with this response are attached hereto; however, consider this a request for any extension inadvertently omitted, and charge any additional fees to Deposit Account 50-2098.

Respectfully submitted,



Timothy J. Zarley  
Reg. No. 45,253  
ZARLEY LAW FIRM, P.L.C  
Capital Square  
400 Locust Street, Suite 200  
Des Moines, IA 50309-2350  
Phone No. (515) 558-0200  
Fax No. (515) 558-7790  
Customer No. 34082  
Attorneys of Record

- TJZ/CAP/jlk -